

REMARKS

By this Amendment claims 1 and 4 have been amended. Claims 1-4 are pending in the present application.

Substitute drawings as required by the Examiner were submitted on August 16, 2004.

The abstract has been amended to address the Examiner's concerns regarding the use of the term "comprising." The specification has been amended to provide proper antecedent basis for the term "reformat" in claim 4. Reconsideration is respectfully requested.

Claims 1-4 are rejected under 35 U.S.C. §102(b) as being anticipated by Koyama et al. (US 4,935,037). Reconsideration is respectfully requested.

Koyama discloses a heat exchanger reformer, wherein the flue gas flows by and indirectly heats the catalyst, but does not contact the catalyst, and is not converted. In contrast, the present invention is an "autothermal reformer" (claim 1), wherein, by definition, the flue gas directly contacts the catalyst and is itself a reactant in the steam reforming process. Therefore, Koyama does not anticipate claims 1-4, and the rejection should be withdrawn.

Claims 1-4 are rejected under 35 U.S.C. §102(b) as being anticipated by Beshty (US 4,946,667). Reconsideration is respectfully requested.

Beshty discloses a heat exchanger reformer, wherein the flue gas flows by and indirectly heats the catalyst, but does not contact the catalyst, and is not converted. In contrast, the present invention is an "autothermal reformer" (claim 1), wherein, by definition, the flue gas directly contacts the catalyst and is itself a reactant in the steam

reforming process. Therefore, Beshty does not anticipate claims 1-4, and the rejection should be withdrawn.

Claims 1, 3 and 4 are rejected under 35 U.S.C. §102(b) as being anticipated by Abens et al. (US 4,588,659). Reconsideration is respectfully requested.

Abens discloses a heat exchanger reformer, wherein the flue gas flows by and indirectly heats the catalyst, but does not contact the catalyst, and is not converted. In contrast, the present invention is an "autothermal reformer" (claim 1), wherein, by definition, the flue gas directly contacts the catalyst and is itself a reactant in the steam reforming process. Therefore, Abens does not anticipate claims 1, 3 and 4, and the rejection should be withdrawn.

Claims 1 and 2 are rejected under 35 U.S.C. §102(b) as being anticipated by Sederquist (US 5,470,360). Reconsideration is respectfully requested.

Sederquist discloses a heat exchanger reformer, wherein the flue gas flows by and indirectly heats the catalyst, but does not contact the catalyst, and is not converted. In contrast, the present invention is an "autothermal reformer" (claim 1), wherein, by definition, the flue gas directly contacts the catalyst and is itself a reactant in the steam reforming process. Therefore, Sederquist does not anticipate claims 1 and 2, and the rejection should be withdrawn.

Claims 1 and 4 are rejected under 35 U.S.C. § 102(b) as being anticipated by Verrill et al. (US 5,938,800). Reconsideration is respectfully requested.

Verrill discloses a heat exchanger reformer, wherein the flue gas flows by and indirectly heats the catalyst, but does not contact the catalyst, and is not converted. In contrast, the present invention is an "autothermal reformer" (claim 1), wherein, by

definition, the flue gas directly contacts the catalyst and is itself a reactant in the steam reforming process. Therefore, Verrill does not anticipate claims 1 and 4, and the rejection should be withdrawn.

Claims 1 and 4 are rejected under 35 U.S.C. § 102(b) as being anticipated by Boucot et al. (US 5,632,787). Reconsideration is respectfully requested.

As amended, claims 1 and 4 recite "two catalytic reactors" and a combustion chamber connected in parallel to the catalytic reactors. Boucot discloses an autothermal reactor, but does not disclose or suggest this feature of the invention. This feature is significant because it avoids the need for a large lining, and makes it possible to supply the catalyst heat with gas which is arriving at a lower linear velocity than what is otherwise necessary to obtain a good mixing (see specification, page 3, bottom). Therefore, Boucot does not anticipate claims 1 and 4, and the rejection should be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

By 

Stephen A. Soffen

Registration No.: 31,063

DICKSTEIN SHAPIRO MORIN &

OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorney for Applicant